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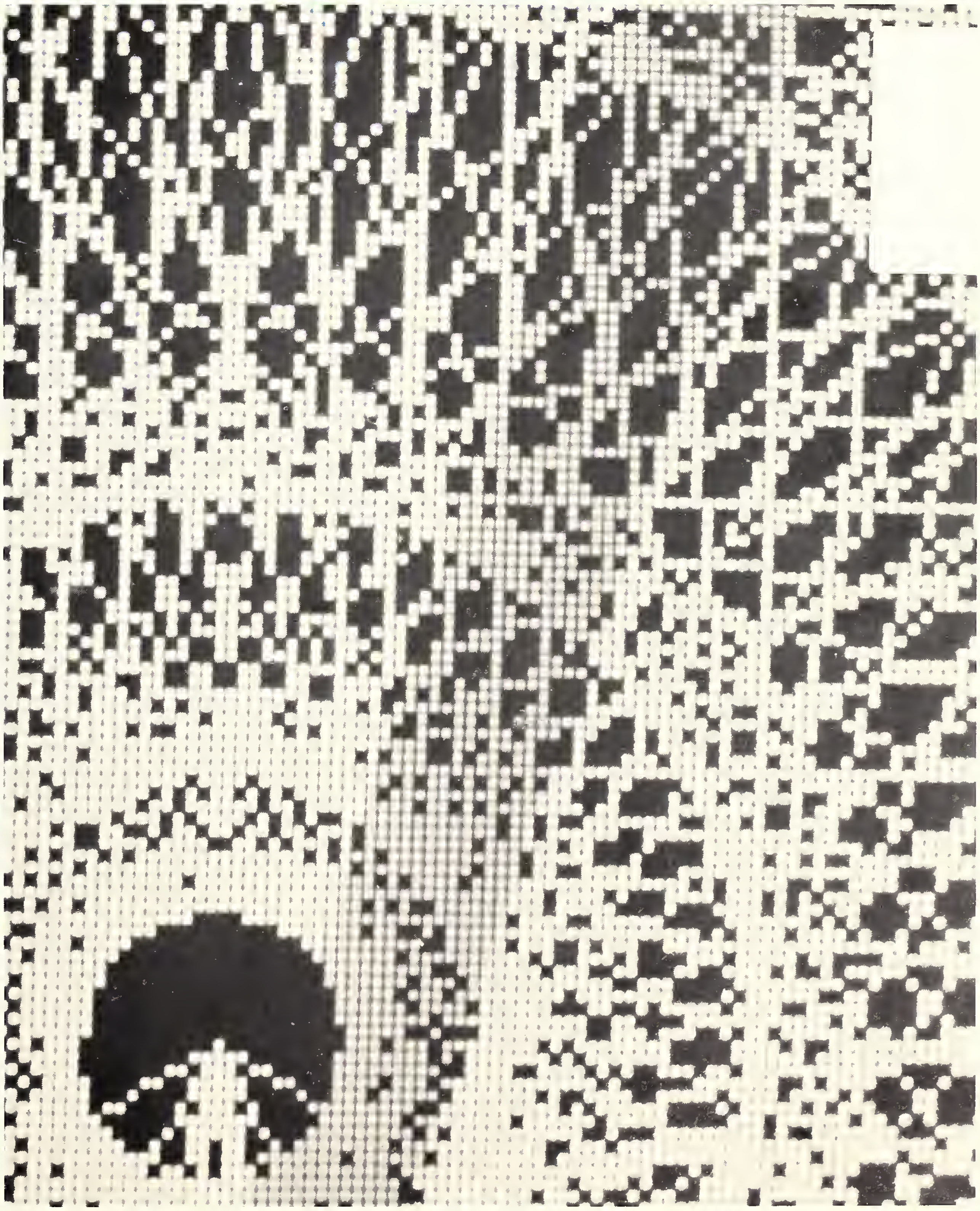

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COMPUTERNEWS

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Cover

This month's cover photograph by Mark Tapia shows a blowup of a Hewlett-Packard screen in graphics mode. This month's feature article *New Interactive Graphics Package* describes KIG (Kernal Interactive Graphics) a graphics software package developed at UTCS.

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NEW INTERACTIVE GRAPHICS PACKAGE

An attempt to show a particular view, trend, or relation often involves the analysis of hundreds or even thousands of pages of computer output, a process which is cumbersome, time-consuming, and even impractical. In comparison, with a picture or a graph the same data is reduced into a form which can be easily understood and interpreted. In this sense, pictures or graphs are more useful than pages of computer output. With computer graphics, users communicate with the computer in visual terms which are natural to humans rather than in terms which are natural to the machine. The graphics software acts as an interface, not only translating computer information into a visual form, but also translating graphics information into a form which is understandable to the computer. In this way, computer graphics promote more effective communication between man and machine. The major factors which limited the use of graphics in the past were the high cost of graphics devices, computer cycles and memory, and data transmission equipment. But with the recent advances in hardware and software development and the reduction in computing costs, particularly the cost of graphics terminals, the demand for an interactive graphics service is increasing.

With the increasing number of graphics terminals comes the need for a sophisticated, device-independent graphics software package. KIG (Kernal Interactive Graphics) is the software package that UTCS has been developing in an attempt to meet this need. Other criteria governing the path of development of KIG at UTCS are as follows. The package must be efficient, economical to use, and compatible with the existing GOULD and CALCOMP software. As well, the graphics software should function the same in a batch environment as in an interactive environment, and must be usable by DEC-1090, IBM 3033 Processor and S/370-165-II users. The end result of the development of the KIG package is that users will be able to run their graphics programs on either the DEC or the IBM machines and be able to switch from the GOULD printer/plotter to the CALCOMP plotter or to a user graphics terminal without any change in the users' programs. For example, a user may use his graphics terminal for program development and day-to-day work and use the GOULD printer/plotter or CALCOMP plotter to obtain hardcopies of his graphs.

The first phase of the KIG project has now been completed. During this phase, UTCS's major aim was to develop the KIG software so that the graphics capabilities of KIG would be equivalent to the capabilities of the GOULD and CALCOMP routines. Once this had been accomplished, the KIG package was installed on both the IBM 3033 Processor and the DEC-1090. In response to the requests of several users, support for various user-owned graphics terminals was provided whenever possible. Currently, UTCS provides support for the following terminals - the Hewlett-Packard 2648A, the Tektronix 4013 and 4015, the Xerox Diablo 1620 and 1641, the DMC 1100, the Datamex 1100A, the DECscope VT52, and the Volker Craig 303A under the IBM 3033, and the Hewlett-Packard 2648A, the Xerox Diablo 1620 and 1641, and the DECscope VT52 under the DEC-1090. It is UTCS's goal to provide the same level of terminal support for both the IBM and DEC machines before the end of this year.

The second phase in the KIG project will concentrate on the development of a facility under TSO which will allow users to obtain graphic displays without doing any programming. This means that a novice user could sit down at a graphics terminal and produce pie-charts, bar-charts, line drawings and graphs by following the step-by-step instructions received from the computer without having any previous knowledge of computer programming. Users could enter

continued...

NEW INTERACTIVE GRAPHICS PACKAGE continued

data, store the data for later use, edit the data for corrections and additions, plot the data on their terminals, and obtain hardcopies from the GOULD and CALCOMP plotters. A preliminary version of this facility has been installed and is currently being tested. The equivalent question and answer mode of producing graphics on the DEC-10 will be developed during the third phase of the KIG project.

One of the responses from users to our introduction of the KIG package was the request for a publicly available graphics terminal. UTCS is pleased to inform users that a Tektronix 4013 has been reserved for this purpose. The terminal will be installed in the VIVA room (Room 203 of the Engineering Annex building) as soon as the equipment for the hardware link to the IBM 3033 arrives. This arrangement will not only meet the needs of those users interested in basic interactive graphics, but also will provide users who are considering buying a graphics device with a means of familiarizing themselves with computer graphics application before making their purchase.

Due to very limited human and financial resources, the development of the interactive graphics service has not been as fast as UTCS would have liked. UTCS appreciates the patience and understanding shown by its users and the support they have given to the KIG package. During the future development of the KIG software, UTCS will continue to keep its users' requirements and interests in mind.

As announced in the October issue of *COMPUTERNEWS*, details concerning uses of the KIG package will be provided in the course entitled *Introduction to Computer Graphics*. The course will be held from November 26 to November 29, 12 p.m. to 1 p.m. It should be noted that enrolment will be limited to twenty persons as hands-on experience will be emphasized and there will be only a few graphics terminals available. To register for the course, please contact the UTCS Information Office, Room 206, Engineering Annex, 11 King's College Road (978-4990).

Kin Fong

SUPERMAN AND OTHERS

Most readers of *COMPUTERNEWS* probably were interested to read the various press reports, starting on the weekend of October 13th, describing the activities of a group of students who accessed a number of UTCS's computing facilities using a stolen Service Access Code (SAC).

The incident as presented by the major Toronto newspapers, as well as by various radio stations and many campus newspapers accurately reflected the events which had taken place. For the benefit of those members of the U of T computing community who are still unaware of this incident of computer code theft, the following recaps the significant events.

Early this year, a student illegally acquired a research user's SAC and made it available to a large group of students. In the early summer of 1979 when the theft was discovered, the Code was deactivated and at that time, an intensive investigation was begun. A number of students were interviewed by campus police and with the approval of the Vice-President's office, these students made statements admitting their part in the unauthorized use of UTCS's computing facilities. It was decided that in this case the students would be required to compensate for the stolen computer time by defraying the charges accrued during the period of illegal use.

To date, most students involved in this escapade have made settlement and the police are still pursuing a few remaining students. Since no criminal charges have been

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SUPERMAN AND OTHERS continued

brought against any of the students involved in this matter and since the settlement has been made totally within the confines of UTCS, the names of the students will not be published. At the time of writing, it is still UTCS's intention to pursue all individuals who have not yet come forward, and these students may still be subject to charges brought by the university administration if they fail to make compensation.

As noted in the press, the identification of the students was made more complicated by their use of a variety of pseudonyms, such as Superman. But thanks to the considerable co-operation of the students involved once they became aware of UTCS's intention to settle without taking any major legal actions against them, UTCS has been able to identify even Superman. Stealing computer Codes by copying from waste paper requires no intellectual skill or programming ability and should be beneath the dignity of any student at the University of Toronto. Such behaviour cannot be justified or condoned.

Dr. Frank Spitzer

TEXT PROCESSING AT UTCS

Computerized text processing was developed in order to reduce the number of steps involved in retyping and reproofing a document, thus reducing document preparation time. As such, the text processing facilities available at UTCS are recommended to all those currently involved in document preparation. With the development of more sophisticated interactive terminals and software, text processing has become a very useful tool for increasing office productivity. The benefits provided by the use of a text processing system in an office environment may be measured in a number of different ways. The principle attractions lie in increased secretarial productivity and less proof-reading for the authors. In some environments a better teamwork results where the secretary types the original version and the author performs the final editing.

One of the biggest problems for users contemplating using such a system for the first time is the unknown costs. To this end UTCS is offering new text processing users three months of computing for a set fee. This introductory offer, intended for members of UTCS's academic community, will give users the opportunity to become familiar with the text processing facilities available at UTCS for a flat rate fee.

Anyone interested in obtaining such an account should contact Dr. Frank Spitzer, UTCS's Faculty Liaison Officer, for further details.

Dr. Frank Spitzer

CSR FOR EXTERNAL USERS

The university users of UTCS's facilities consist of students, faculty and staff. However, UTCS does allow certain external groups to access our system resources. These groups fall into several broad categories. Some examples are; research organizations (like the Addiction Research Foundation), organizations affiliated with the University of Toronto (such as O.I.S.E.), government agencies (federal, provincial and municipal), hospitals (such as Sunnybrook), other universities, colleges and schools, charities, and, in some instances, even individuals and private businesses.

continued...

CSR FOR EXTERNAL USERS continued

However, requests for computer usage by external users are carefully screened. Each application must satisfy three criteria;

1. The firm desires use of a service or package which is unique in that it is not provided by outside sources.

2. The service requested will not introduce additional costs to the University, such as the purchase of extra hardware.

3. The service requested will not impact the needs of the university community.

The first of the above criteria does not apply to teaching hospitals, other universities, colleges and schools, organizations affiliated with the University, and, in some cases, research foundations. These groups are billed using the standard UTCS rate schedule for computer services. All other external users are charged special rates which are approximately two times the UTCS standard rates.

The Computing Services Representative responsible for external users is Mr. Ihor Prociuk. Mr. Prociuk can be reached at his office, which is located in Room 205 of 49 St. George, or by calling 978-6875 or 978-6885. Ihor has been with UTCS for just over two years. Before his position as CSR for external users, Ihor was the Computing Co-ordinator for the Scarborough College remote terminal site. During this period, Ihor developed an interest in interactive computing, particularly text processors and APL.

All external users are encouraged to call on Ihor regarding any aspect related to UTCS's facilities and resources.

Ihor Prociuk

DATA ENTRY, KEYPUNCHING AND TEXT PROCESSING SERVICES

Data Entry and Keypunching

UTCS's Administrative Computing Services provides swift,reliable and accurate preparation of computer data for University of Toronto users using UNIVAC VIP 1810 keypunch machines and a UNIVAC CADE Computer Assisted Data Entry System.

The CADE System is a computer-controlled system which prepares data in machine-readable form. From a keystation, the operator performs the four main activities : entering, verifying, modifying and updating data. All work is entered at the keystation under control of a computer program custom designed for the user's specific application, which contains special instructions that direct the system and determine what actions are allowable as the data is keyed into the system.

Data is entered under the control of a particular program and is processed on the basis of files, records, batches and data files. After processing, the data is stored on magnetic disk. When all batches of a single job have been entered and verified, they may be transferred to a magnetic tape or to a dataset on the IBM Processor.

The charges for data entry are:

Immediate Turnaround - High Priority

$2.75 per 1000 keypunched keystrokes
$2.75 per 1000 verified keystrokes

Two Week Turnaround

$1.60 per 1000 keypunched keystrokes
$1.60 per 1000 verified keystrokes

Text Processing

The text processing system used by Data

continued...

DATA ENTRY, ETC. continued

Services consists of the SOS text editor and the RUNOFF text formatter which run on the DECsystem-10 computer. Use of the SOS/RUNOFF text processing system greatly reduces the amount of time required to type, edit and reproduce documents.

The charge for text processing is:

$10.00 per hour plus 25 cents per final page for output produced on the system printer or 50 cents per final page for higher quality output.

By making use of recent technological advances in computing, Data Services is able to supply an efficient, comprehensive data entry service to the university community.

Data Services welcomes any potential users of our data services to view this installation and will assist in preparing jobs for data entry on our system. Those interested in making use of any of the services provided by Data Services are asked to please contact Mrs. Vera S. Cabanus (phone 978-5040), McLennan Labs, Room 368.

Vera Cabanus

UNDERGRADUATE TERMINALS

UTCS maintains facilities intended principally for the use of undergraduate students running processors on the High Speed Job Stream; for students in the Faculty of Arts and Science there is the Arts and Science Undergraduate Terminal (ASUT) located in the Sidney Smith Building, and for the students of the Faculty of Engineering there is the Engineering Undergraduate Terminal(EUT) located in the Engineering Annex building. UTCS has also recently installed a facility in the McLennan Physical Laboratories, known as the Physics Undergraduate Terminal (PUT).

These facilities are very heavily used whenever the students of large classes, particularly introductory courses, are attempting to meet assignment deadlines. There is considerable concern that the pressure cooker environment under which students operate at these times is leading to some anti-social behaviour. There have been reports that students have worked throughout the night in order to complete assignments and clearly nobody's concentration is at its peak after 18 or more hours without sleep. However, the condition in which the terminals have been left on a number of recent occasions gives UTCS considerable concern since the janitorial staff is reluctant to clear the rooms every few hours.

UTCS asks students and staff alike to please ensure that whenever discarding cards or printed output, they are put into one of the many bins provided for this purpose. Allowing the paper and cards to build up on the floor, on the keypunches, on the printers, on the tables, and to overflow the garbage pails could result in an accident. UTCS hopes that by asking for the cooperation of all instructors and students in this matter, the occurrence of such an accident can be avoided.

Dr. Frank Spitzer

CALL FOR IDEAS

The Committee for the Eighth Annual ACM-SIGUCC User Services Conference requests the honor of receiving your ideas. What would make USC-8 a good conference from your point of view?

USC-8 is scheduled tentatively for the days of Sunday, November 16 through Wednesday, November 19, 1980 in Morgantown, West Virginia. The Call for Papers will ask that abstracts be submitted by March 15, 1980.

What would you like to hear? To see? To do? Send your ideas to any of the following Committee members:

Richard A Pollak
Academic Computer Center
U.S.N.A.
Annapolis, MD 21402

Kay Beach
Center for Computing
George Washington Univ.
Lisner Hall 302
2023 G Street, NW
Washington, DC 20052

Ann White
IPS - Room 39-419
M.I.T.
60 Vassar Street
Cambridge, MA 02139

Phillip R. Contic or
Rita S. Saltz
WVNET
837 Chestnut Ridge Road
Morgantown, WV 26505

The Committee has vowed that USC-8 will be exciting, enlightening, and original. Your ideas can help.

THE CANADIAN INFORMATION PROCESSING SOCIETY (CIPS)

The Canadian Information Processing Society (CIPS) was formed in 1958 to bring together Canadians with a common interest in the field of information processing. The current membership of over 4000 includes scientists, educators, businessmen, students and others who make their careers in information processing. With a membership body of this size and diversity CIPS is nationally and internationally recognized as the voice and conscience of information processing in Canada. CIPS has undertaken a long term commitment to promote the use of computers in Canadian Society.

The activities of CIPS include:

- Committees organized to pursue special interests such as public service, government liaison, privacy and security and professional standards.
- Seminars and Conferences held at National and Regional level to exchange information such as Annual Canadian Computer Show and Conference (Fall each year in Toronto), Session 80 (May 12 - 14, 1980 Victoria, B.C.).
- Publications to disseminate information including; *Computer Census* (authoritative directory of computer installations in Canada), *Salary Survey* (guide to Canadian salaries at all occupational levels in the data processing industry), and *CIPS REVIEW* (bi-monthly magazine containing informative, useful and highly controversial articles covering the broad spectrum of information processing).

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CIPS continued

The Toronto Section of CIPS offers both full memberships and student memberships in the Society. The former has an annual fee of $75.00 which entitles the member to all publications and admission to the dinner meetings and technical sessions without charge. Student members enjoy all the benefits of full membership for $10 fee with the exception that a charge of $5 (less than guest rates) is made for attending dinner meetings.

Further information and membership applications may be obtained by phoning the CIPS National Office (416) 593-4040.

NEW TITLES IN DCS LIBRARY

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UTCS SYSTEMS

3033 PROCESSOR

- located in Mclennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 6 megabytes of memory
- MVS with JES2

SYSTEM/370 MODEL 165-II

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 4 megabytes of memory
- OS/MVT with APL and ATS

3031 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC Batch and TSO services
- 6 megabytes of memory
- MVS with JES2

DECSYSTEM 10 Model 1090

- located in Sandford Fleming
- provides General Purpose Time-Sharing
- 256k - 36 bit words of memor
- TOPS10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in SF106
- DEC GT44 Systm with PDP-11/40 CPU
- 2 Z-80 based microcomputers
- DEC GT40 System with PDP-11/05 CPU
- provides specialized graphics and inter- active graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

UTCS DIRECTORY

POSITION	ROOM	CENTREX PHONE NUMBER
Director		
Dr. Doron Cohen	MP350	8948
Associate Directors		
Rein Mikkor	MP350	5058
Al Heyworth	MP350	4936
Faculty Liaison Officer		
Dr. Frank Spitzer	MP350	4619
Manager, Communications & Small Systems		
Eugene Siciunas	MP350	4
Manager, Operations		
Derry Cox	MP350	7092
Manager, Systems		
ard Beattie	MP350	3579
Manager, Academic Computing Services		
Ralph Lombardi	MP350	7130
Manager, Administrative Computing Services		
Walter Berndl	MP350	7331
Manager, Services Support		
Don Gibson	MP350	5568
Administrative Officer		
Suzan Fawcett	MP350	4428
Information & Account		
General Inquiries	EA206	4990
Accounts		
Merton Hunte (U of T)	EA206	8702
Sylvi May (External)	EA206	7148
Supervisor, Accounting & Information Services		
Marg Doherty	EA209	3960
Access Codes		
Agatha Stevens	EA206	8703
Programming Services		
Bill Lauriston	SG201	6877

UTCS continued

Entry Services

Supervisor		
Vera Cabanus	MP368	5040
Text Entry		
Dale Wright	MP368	4565
Data Entry		
Zelda Anderson	HU405	5273
Keypunching		
Dale Wright	MP368	4565

Supervisor, Applications

Herb Kugel	SG304	7286

Computing Services Representatives

Engineering Annex Terminal		
Sue Chong	EA201	4357
Program Advisors	EA103	
Time-Sharing Support		
TS Advisors	SG204	6465
Mark Tapia	SG204	7109
Erindale		
Paul Shindman		828-5311
Scarborough		
Bob Blackburn		284-3173
Arts and Science		
	SS2133	6509
New Physics		
Bob		
External		
Ihor Prociuk	SG205	6887,6885

Supervisors, Operations

Paul Scarborough (IBM 3033-IBM 165)	MP335	6220
Krishna Patnaik (DEC-1090 & CSS)	SF106	4086
Dave Wong (IBM 3031)	MP335	6846

Key:

EA = Engineering Annex
SF = Sandford Fleming
SG = 49 St. George
SS = Sidney Smith
MP = McLennan Physical Laboratories (New Physics)

Job and System Status Queries

SYSTEM/3033,TSO	7373
2741 TERMINAL MALFUNCTIONS	7107

Time-Sharing Services	**Dial-Up**
APL,ATS	720 Centrex 7201 Non Centrex
TSO,WYLBUR	6200 Centrex 6201 Non Centrex
DEC-10 Services	4224 Centrex 4244 Non Centrex
PHONE-IN ADVISING	6465

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